Electrons from PW5 muons

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Short report
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Outline

- Introduction
- Extraction method
- Example event
- Conclusions
- Outlook

Introduction

- It has been suggested to use electrons from the data to check my selection cuts

- Electrons are available in the form of ν_eCC interactions
  - readily available
  - "contaminated" with hadrons

- Electrons are also available from PW5 muons that produce a shower in a module
  - events have to be extracted
  - known, small contamination from muons

Extraction method

- Go through PW5 events and re-analyze
- Look for > (muon + 2 SF lines) in each view in a module
  - if there is one muon: at least 3 lines in each view

  → shower

  - require a shower behind module 4
  - selected 140 events out of 45000 in period 4
- Visual scan
  - remove garbage, noise
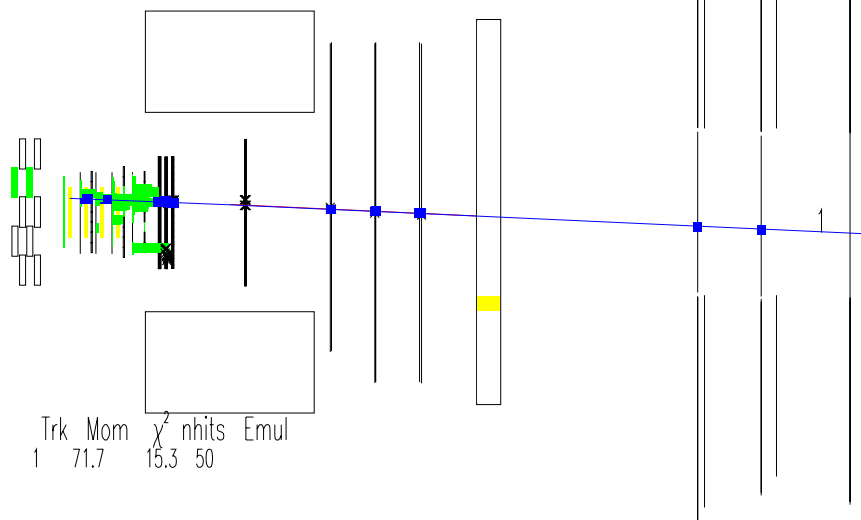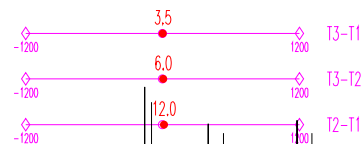   - large angle muons, events with no muon
  - keep 106 events

Example event

Triggers set
T1.T3

3.5   T3-T1
-1200   1200

6.0   T3-T2
-1200   1200

12.0   T2-T1
-1200   1200

E872 Run= 3326 Event= 7861 Wght= 1.0

U View

3.5   T3-T1
-1200   1200

6.0   T3-T2
-1200   1200

12.0   T2-T1
-1200   1200

Trk	Mom	χ^2	nhits	Emul
1	71.7	15.3	50	

Vtxz Z	U	V	Proc
0.3020	-0.0467	0.1543	1
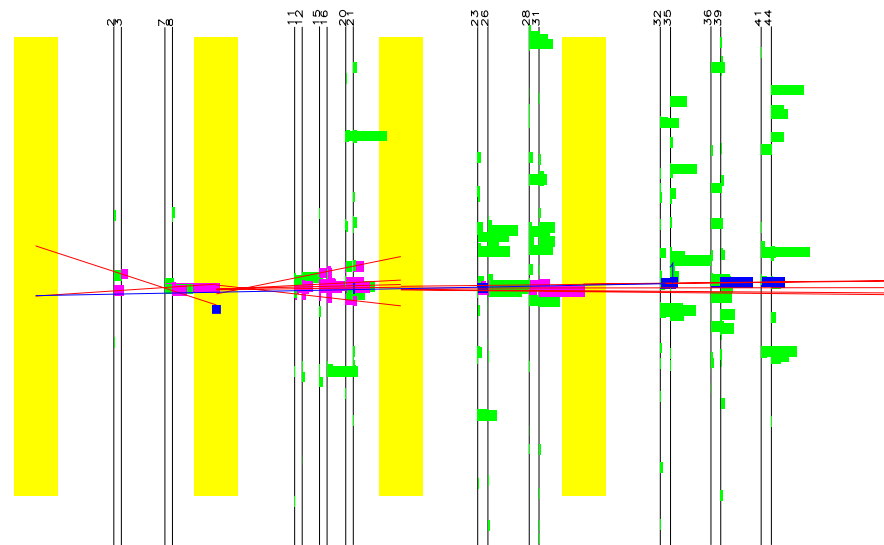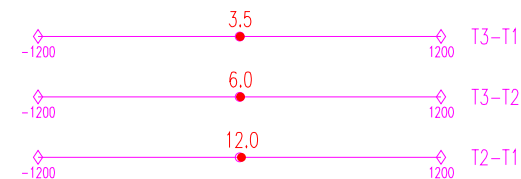
Vtxz	Proc	U	V	Z	ntrk
1	-0.0467	0.1543	0.3020	0	

Conclusions

- Electron showers can be extracted from the PW5 muon data (0.24% of the events)
- The energy of the generated showers is small
  - but the same muon might create several showers

Outlook

- I will use the extracted 106 events to check my cuts
- I will extract electrons for all run periods